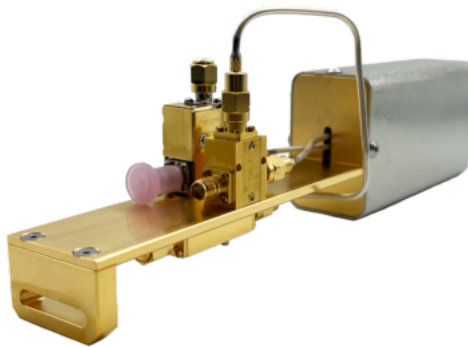


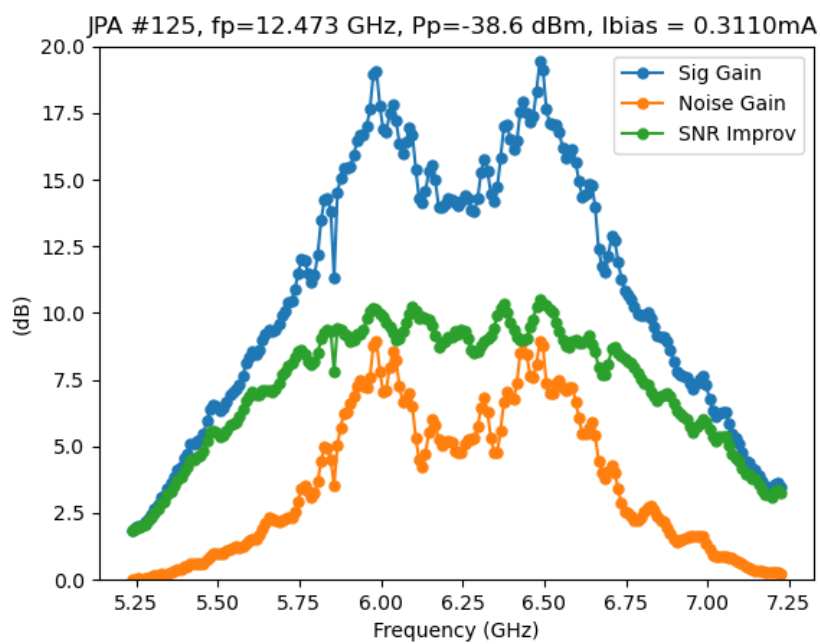


Cryogenic Testing Service

Certification Report for JPA-MCA01 with Raytheon JPA S/N # 000125:
July 18, 2024

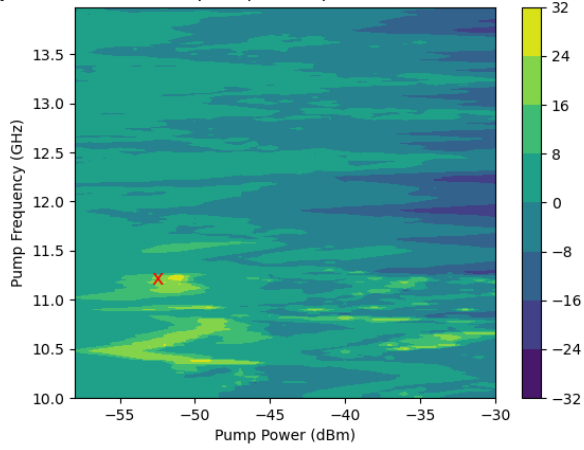


Sample JPA Tuneup

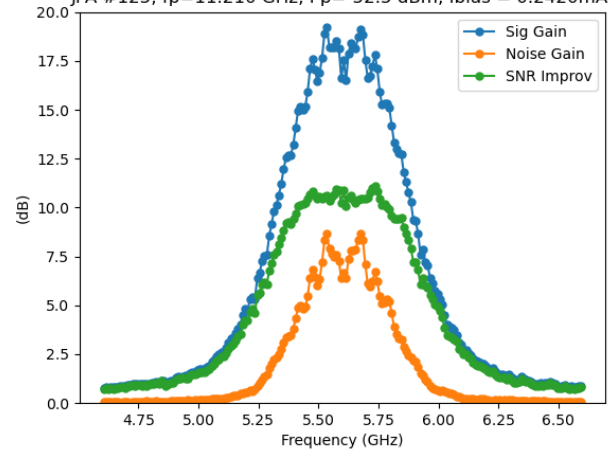


JPA Tuneup 1:

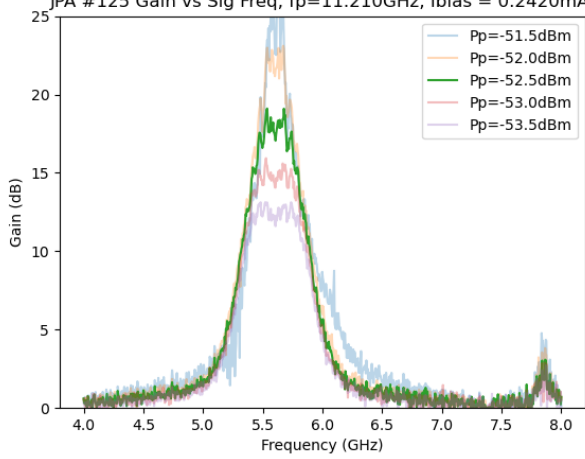
JPA #125 Gain vs Pump Freq vs Pump Power, I_{bias} = 0.2420mA



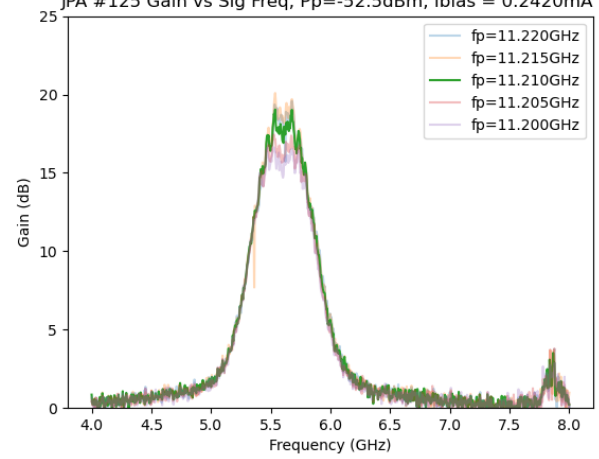
JPA #125, f_p=11.210 GHz, P_p=-52.5 dBm, I_{bias} = 0.2420mA



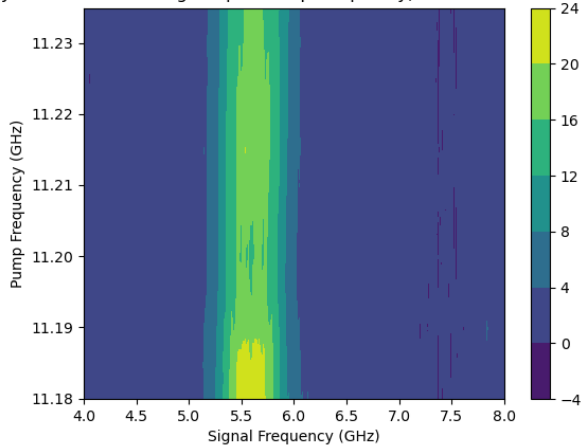
JPA #125 Gain vs Sig Freq, f_p=11.210GHz, I_{bias} = 0.2420mA



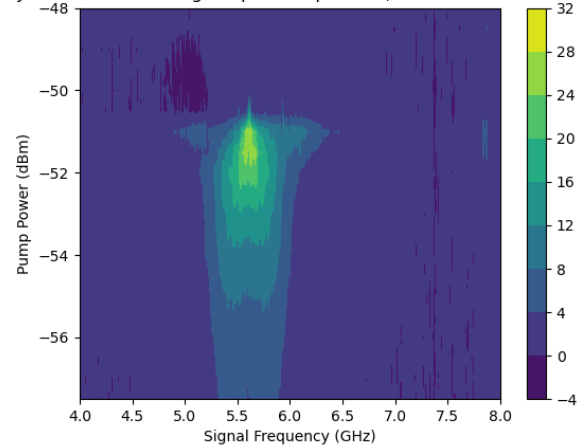
JPA #125 Gain vs Sig Freq, P_p=-52.5dBm, I_{bias} = 0.2420mA



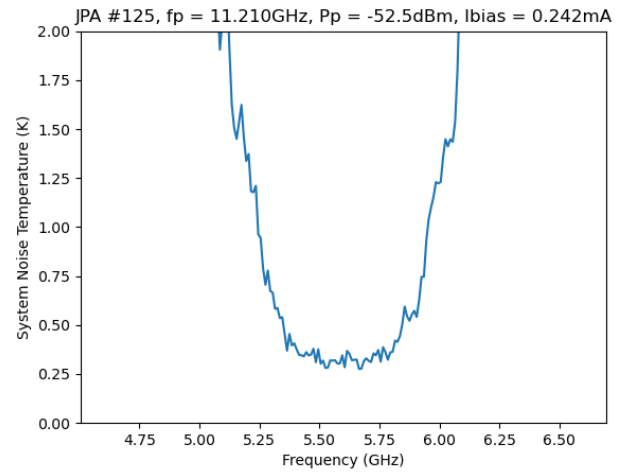
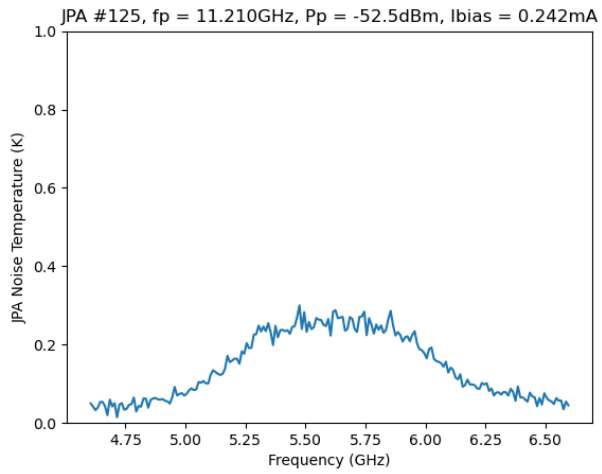
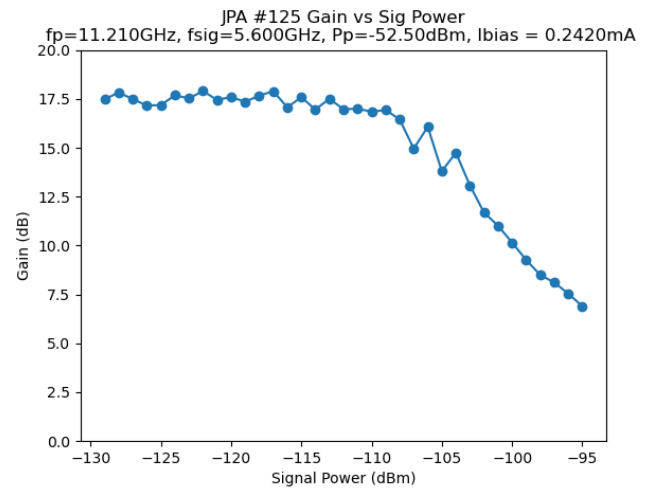
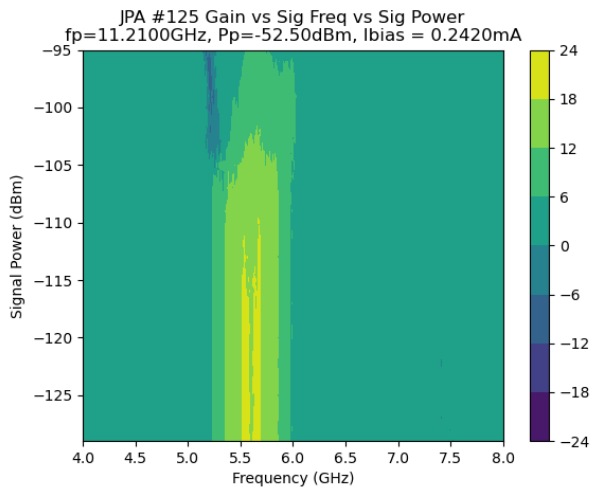
JPA #125 Gain vs Sig Freq vs Pump Frequency, I_{bias} = 0.2420mA



JPA #125 Gain vs Sig Freq vs Pump Power, I_{bias} = 0.2420mA

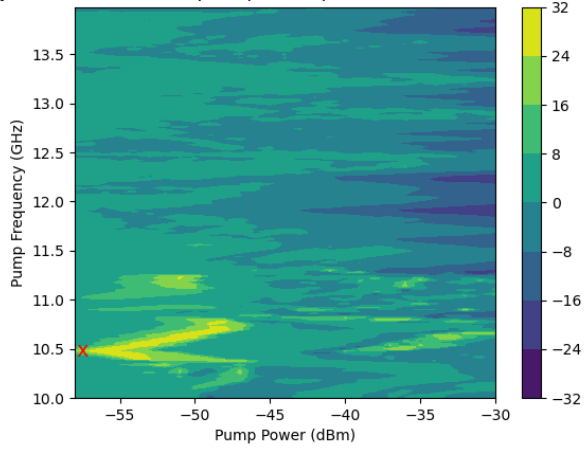


Sample JPA Tuneup 1 (cont.):

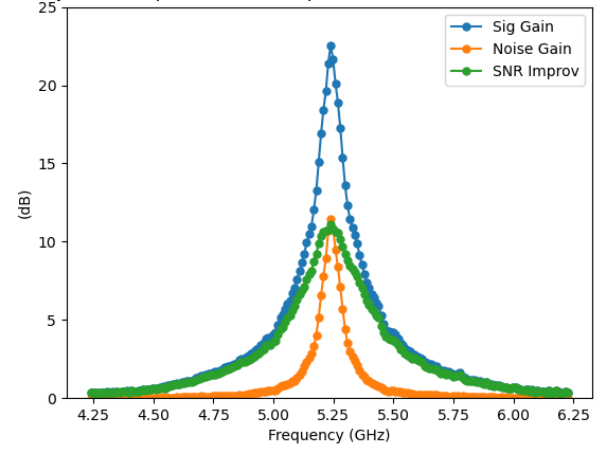


Sample JPA Tuneup 2:

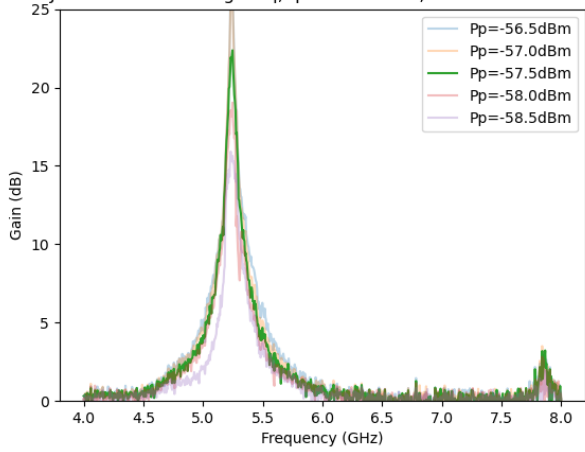
JPA #125 Gain vs Pump Freq vs Pump Power, I_{bias} = 0.2390mA



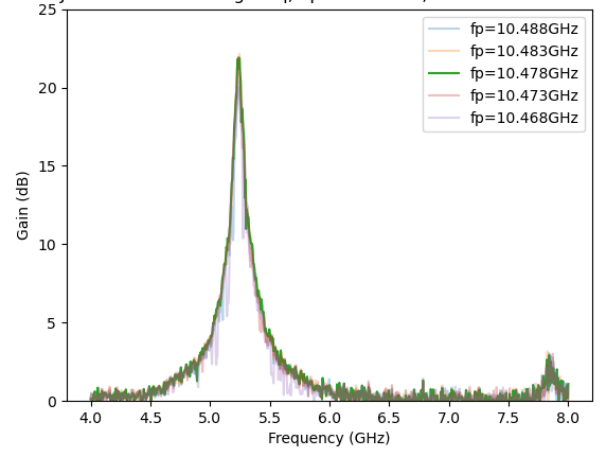
JPA #125, $f_p=10.478$ GHz, $P_p=-57.5$ dBm, I_{bias} = 0.2390mA



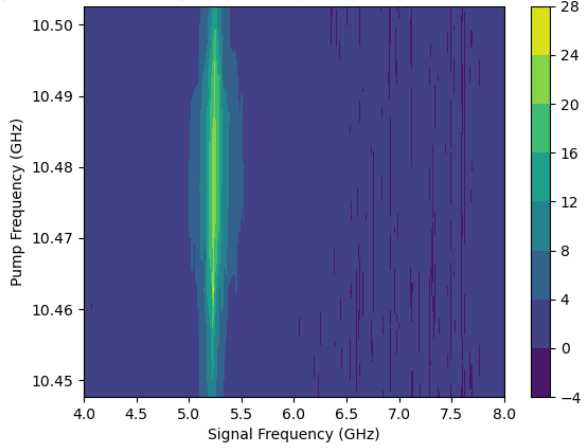
JPA #125 Gain vs Sig Freq, $f_p=10.478$ GHz, I_{bias} = 0.2390mA



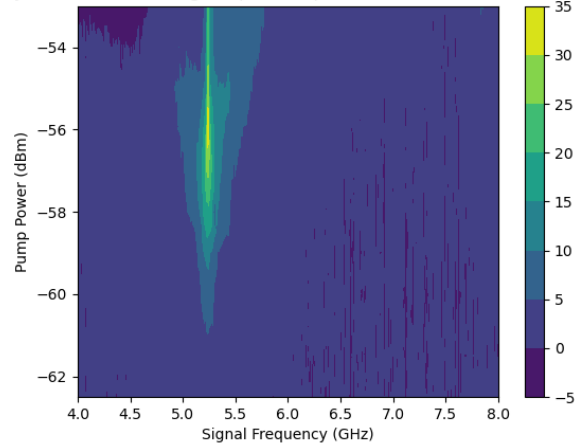
JPA #125 Gain vs Sig Freq, $P_p=-57.5$ dBm, I_{bias} = 0.2390mA



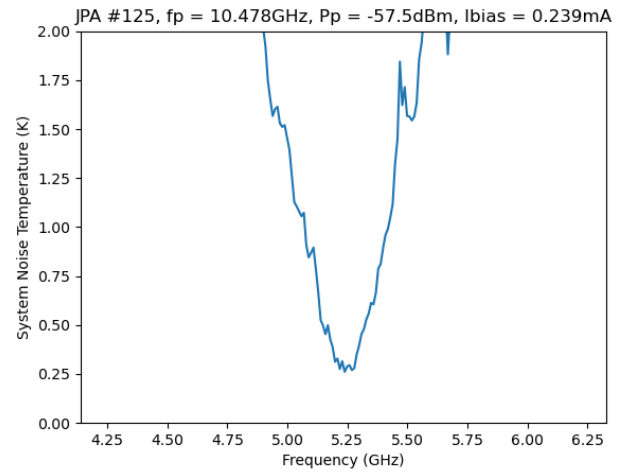
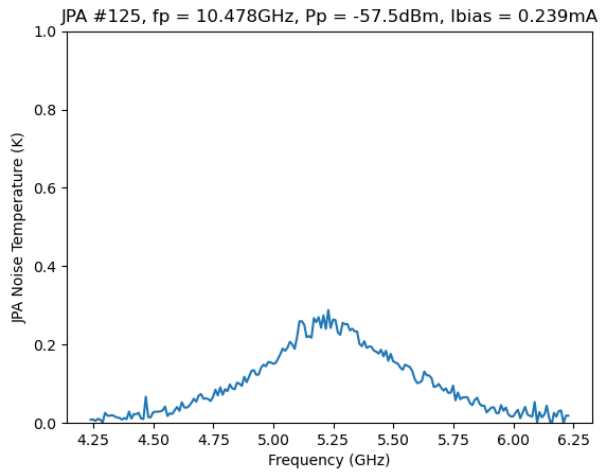
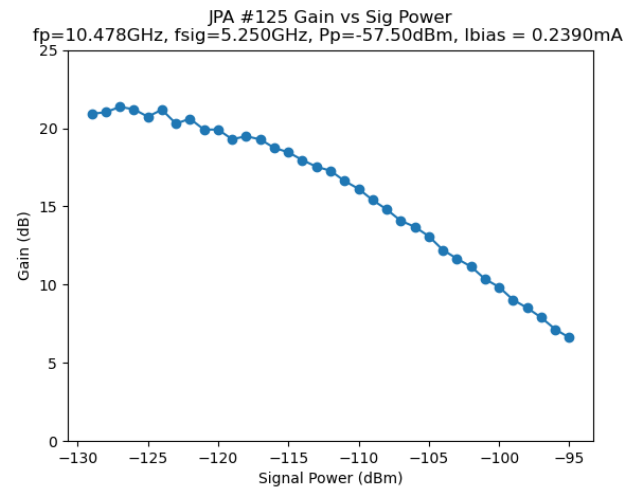
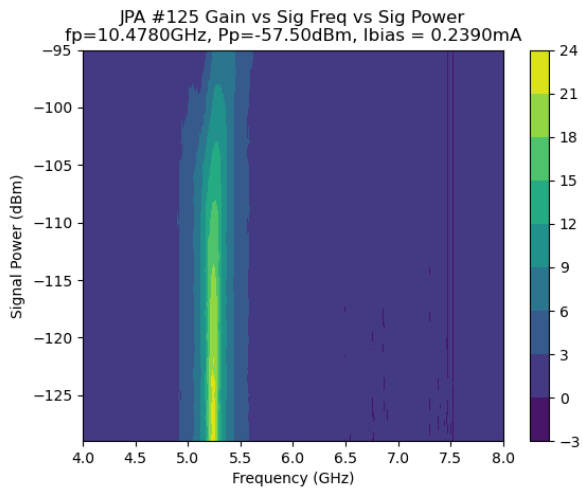
JPA #125 Gain vs Sig Freq vs Pump Frequency, I_{bias} = 0.2390mA



JPA #125 Gain vs Sig Freq vs Pump Power, I_{bias} = 0.2390mA

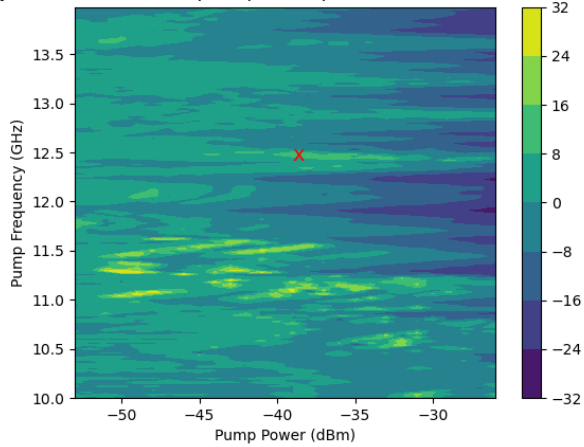


Sample JPA Tuneup 2 (cont.):

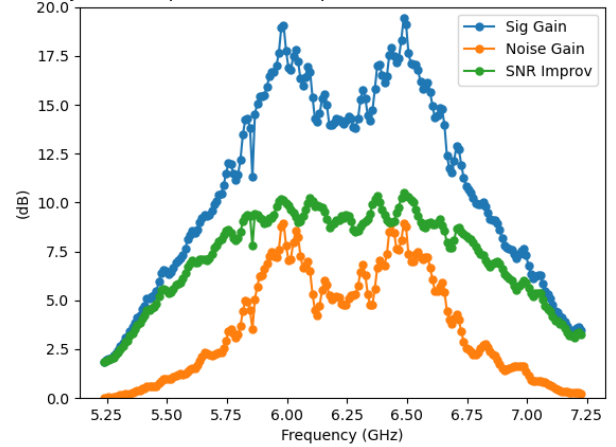


Sample JPA Tuneup 3:

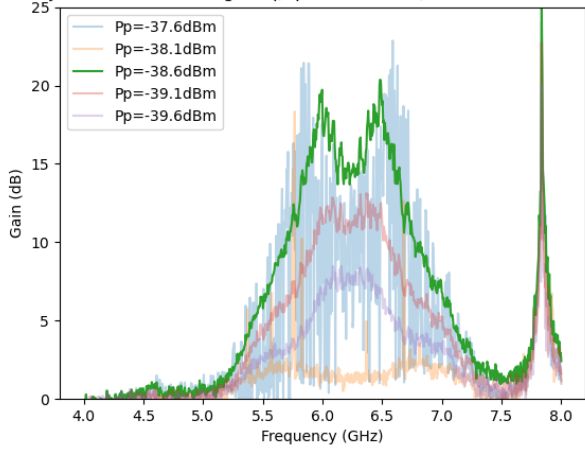
JPA #125 Gain vs Pump Freq vs Pump Power, I_{bias} = 0.3110mA



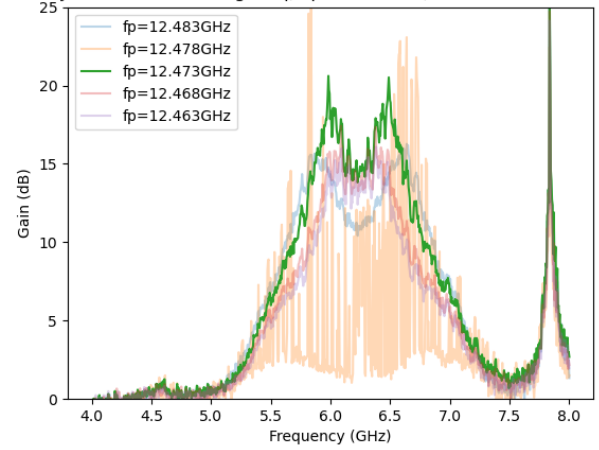
JPA #125, f_p=12.473 GHz, P_p=-38.6 dBm, I_{bias} = 0.3110mA



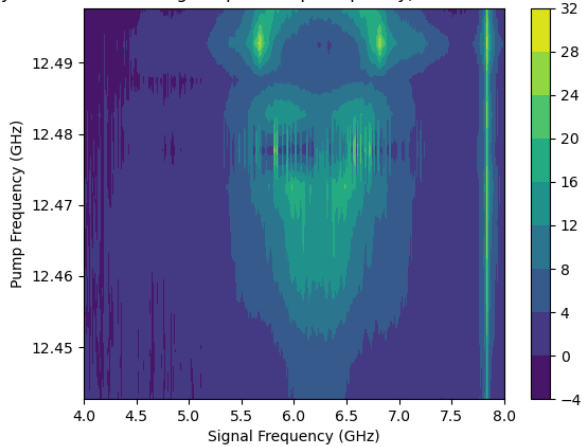
JPA #125 Gain vs Sig Freq, f_p=12.473GHz, I_{bias} = 0.3110mA



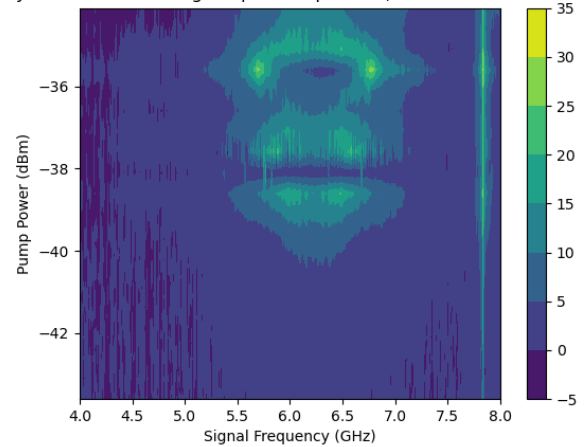
JPA #125 Gain vs Sig Freq, P_p=-38.6dBm, I_{bias} = 0.3110mA



JPA #125 Gain vs Sig Freq vs Pump Frequency, I_{bias} = 0.3110mA



JPA #125 Gain vs Sig Freq vs Pump Power, I_{bias} = 0.3110mA



Sample JPA Tuneup 3 (cont.):

